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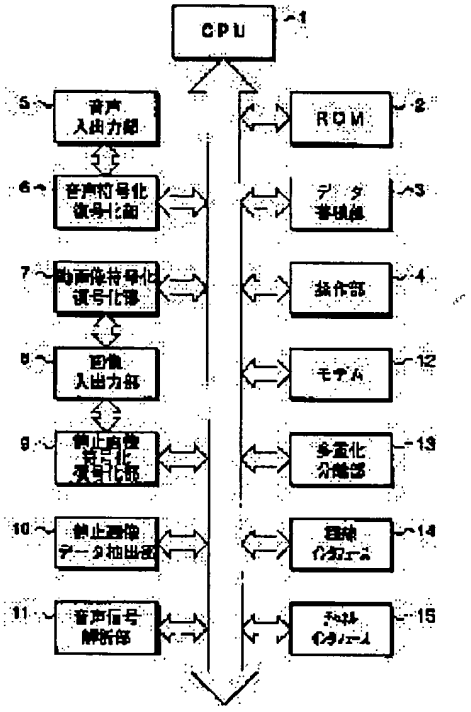
(54) VIDEO TELEPHONE SET

(57)Abstract:

PROBLEM TO BE SOLVED: To easily confirm the summary of automatically recorded data stored in a video telephone set from a distant place.

SOLUTION: When moving image data are received through a line interface 14, a CPU 1 stores these moving image data in a data storage part 3. Then, a still image data extracting means 10 extracts the still image data from the stored moving image data, and these still image data are binarized, converted to data for facsimile and transferred through the line interface 14 to prescribed facsimile equipment.



LEGAL STATUS

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JAPANESE [JP,09-233444,A]

CLAIMS DETAILED DESCRIPTION TECHNICAL FIELD PRIOR ART EFFECT OF THE INVENTION TECHNICAL PROBLEM MEANS DESCRIPTION OF DRAWINGS DRAWINGS

[Translation done.]

* NOTICES *

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DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention] Especially this invention relates to the TV phone machine which has the are recording function of dynamic-image data about a TV phone machine.
[0002]
[Description of the Prior Art] Communication technology was remarkably developed in recent years, dynamic-image data joined till then text data, voice data, and the commo data whose graphics data was main, and communicative multimedia-ization has progressed quickly. In the communication link end, a TV phone machine, a video conference system, etc. which can communicate dynamic-image data are realized by the spread of ISDN (service synthesis digital network), improvement in the speed of the modem in a PSTN circuit, etc.
[0003] In the TV phone machine and video conference system which can communicate the dynamic-image data of these former, when a message is received during absence, the thing with the so-called timed-recording function which can accumulate the message by the dynamic-image data from a partner user and voice data in an are recording means is also realized.
[0004]
[Problem(s) to be Solved by the Invention] By the way, in a TV phone machine with the above-mentioned conventional timed-recording function, in order to know the contents of the automatic answering data (message) accumulated in the are recording means during absence from a going-out place, call origination is carried out to the TV phone machine which is accumulating automatic answering data using the same end from the going-out place, and how to take out the data can be considered.
[0005] However, in the TV phone machine equipped with such a function, now, many do not exist so much yet. Furthermore, even if it is the TV phone machine equipped with the above-mentioned function, when it is the product manufactured in the manufacturer where the TV phone machines which carry out call origination to the TV phone machine which is accumulating automatic answering data from a going-out place differ, what the compatibility is not guaranteed to is almost the case. Therefore, it was impossible to have got to know the contents of the timed-recording message of a TV phone machine from a going-out place conventionally as a matter of fact.
[0006] This invention was made under such a background and the purpose is in enabling it from a remote place to checking easily the outline of the automatic answering data accumulated in the TV phone machine.
[0007]
[Means for Solving the Problem] In order to attain the above-mentioned purpose, a TV phone machine according to claim 1 A communications control means to perform communications control of the various data containing dynamic-image data, and an are recording means to store the dynamic-image data received through this communications control means, An extract means to extract static-image data from the dynamic-image data stored in this are recording means, It has a conversion means to change into the data for facsimile the static-image data extracted by this extract means, and the transfer control means which supplies the static-image data changed into the data for facsimile by this conversion means to said communications control means, and is made to transmit to predetermined facsimile apparatus.
[0008] In order to attain the above-mentioned purpose, said communications control means in claim 1, the are recording means, the extract means, and the conversion means consist of TV phone machines according to claim 2 so that actuation according to a convention of ITU-TS may be performed.
[0009] In order to attain the above-mentioned purpose, said extract means in claim 1 consists of TV phone machines according to claim 3 so that the static-image data of a multiple frame may be extracted from the dynamic-image data stored in said are recording means and it may change into static-image data of one frame.
[0010] In order to attain the above-mentioned purpose, said transfer control means in claim 1 consists of TV phone machines according to claim 4 so that the static-image data applied to said conversion to the facsimile apparatus of the destination registered beforehand may be made to transmit.
[0011] In order to attain the above-mentioned purpose, said transfer control means in claim 1 consists of TV phone machines according to claim 5 so that the static-image data applied to said conversion to the facsimile apparatus which performed the transfer request may be made to transmit.
[0012] In order to attain the above-mentioned purpose, said transfer control means in claim 1 consists of TV phone machines according to claim 6 so that the static-image data concerning said conversion may be made to transmit to predetermined facsimile apparatus, when the time amount set up beforehand comes.
[0013] In order to attain the above-mentioned purpose, said transfer control means in claim 1 consists of TV phone machines according to claim 7 by receiving with a sound signal through said communications control means so that the static-image data applied to said conversion to the facsimile apparatus of the number to be dialed registered beforehand may be made to transmit.
[0014] In order to attain the above-mentioned purpose, in the TV phone machine according to claim 8, said static-image data in claim 1 are the multi-image data which consists of a multiple frame which constitutes said dynamic-image data.
[0015]
[Embodiment of the Invention] Hereafter, the gestalt of operation of this invention is explained based on a drawing. In addition, the following explanation shall be explanation supposing the TV phone machine equipment connected to ISDN, and the facsimile protocol in

the gestalt of this operation shall follow a G3 facsimile.
[0016] Drawing 1 is the block diagram showing the outline configuration of the TV phone machine by the gestalt of operation of this invention. In drawing 1 , CPU by which 1 controls the whole actuation of this TV phone machine, and 2 ROM in which the static-image data extraction means by this invention, a facsimile communications control means, the other programs for television telephone control, etc. are stored, and 3 The voice data from the voice coding decryption section 6, the dynamic-image data from the dynamic-image coding decryption section 7, It is the data accumulation section which accumulates the received data from the circuit interface 14 etc. through the static-image data, the various input data from a channel interface 15, and the multiplexing separation section 13 from the static-image data extraction section 10.
[0017] The control unit which has the keyboard used for data inputs, such as a number to be dialed of control information for 4 to control this TV phone machine and the facsimile apparatus of the other static-image data transfer points, and 5 have the hand set which is a voice-input/output means, a microphone, a loudspeaker, etc., and are analog-to-digital conversion of a sound signal, and the voice-input/output section which performs digital to analog processing.
[0018] 6 follows the coding decryption algorithm of the voice specified in ITU-TS advice G series. The voice coding decryption section which performs coding processing of a transmitting sound signal and decryption processing of a receiving sound signal, and 7 The coding decryption algorithm of the dynamic image specified by ITU-TS advice H.261 is followed. The dynamic-image coding decryption section which performs coding processing of a transmitting dynamic image and decryption processing of a receiving dynamic image, and 8 It has the image photography sections, such as the image display sections, such as a monitor which is the output means of image data, and a camera, and they are analog-to-digital conversion of an image data signal, and the image I/O section which performs digital to analog processing.
[0019] Coding processing of static-image data in which 9 was extracted in the static-image data extraction section 10, The static-image coding decryption section which performs decryption processing of the static-image data received from facsimile apparatus through the circuit interface 14 and 10 [and] Decryption processing of the dynamic-image data concerning the reception encoded by the convention of ITU-T recommendation H.261, The static-image data extraction section which performs binary-ized processing of the specified frame further including the frame memory for the processing, and extracts a static image and 11 [and] The sound signal analysis section for analyzing the DTMF signal received from the push-button phone etc., and registering the number to be dialed of the facsimile apparatus of the destination and 12 In case it communicates according to a facsimile protocol, it is the modem which performs modulation processing of a sending signal, and recovery processing of an input signal.
[0020] 13 follows the ITU-TS advice H.221. The sound signal from the voice coding decryption section 6, The multiplexing processing which multiplexes the dynamic-image signal from the dynamic-image coding decryption section 7, and the various data signals inputted through a channel interface 15 per transmitting frame according to current communication capability and the current communicate mode, And a receiving frame is divided into each media of a configuration unit, and they are the voice coding decryption section 6, the dynamic-image coding decryption section 7, and the multiplexing separation section that performs separation processing notified to a channel interface 15.
[0021] The circuit interface which 14 is connected to ISDN and controls a circuit according to an ISDN user and a network interface, and 15 are the channel interfaces for connecting external devices, such as a personal computer.
[0022] By the above-mentioned configuration, when this TV phone machine receives the data containing dynamic-image data, the data is stored, static-image data are extracted from the stored dynamic-image data, and characteristic actuation of transmitting to facsimile apparatus is performed. It explains according to the flow chart which showed the detail of this actuation to drawing 2 and drawing 3 .
[0023] CPU1 will connect a call first according to an ISDN user and a network interface, if a call in is detected (step S200). And the communicate mode is set up through the frame synchronization procedure specified by the ITU-TS advice (it is hereafter called advice for short) H.221, the capacity exchange procedure specified by advice H.242, and a mode change procedure (step S201). Next, data are received through the circuit interface 14, the received data are stored to the data accumulation section 3 (step S202), and a call is cut according to an ISDN user and a network interface (step S203).
[0024] And the data stored in the data accumulation section 3 are analyzed, and the data distinguishes whether it is dynamic-image data according to coding specified by advice H.261 (step S204). Consequently, if it is not the above-mentioned dynamic-image data, it will end as it is. On the other hand, if it is the above-mentioned dynamic-image data, it will distinguish whether it is the mode (henceforth facsimile data-conversion mode) changed into the static-image data according to coding specified by advice T.4 from the stored above-mentioned dynamic-image data (step S205).
[0025] Consequently, if it is not in facsimile data-conversion mode, it will end as it is. On the other hand, if it is in facsimile data-conversion mode, it will distinguish whether it is the mode (henceforth multi-picture mode) in which two or more static-image data are extracted from the dynamic-image data according to coding specified by advice H.261 accumulated in the data accumulation section 3 (step S206).
[0026] Although resolution falls by transmitting a static image with multi-picture mode, it becomes [what kind of a series of images are accumulated and] a top to be able to reduce communication link cost identifiable.
[0027] Consequently, if it is in multi-picture mode, the static-image data extraction section 10 will be made to extract the static-image data of a multiple frame from the above-mentioned dynamic-image data stored in the data accumulation section 3 (step S207). And a data interpolation is performed about the static-image data of the extracted multiple frame, and by compounding the image after interpolation, it changes into static-image data of one frame (step S208), and progresses to step S210. On the other hand, if it is not in multi-picture mode, by the static-image data extraction section 10, static-image data of one frame will be extracted from the dynamic-image data according to coding specified by advice H.261 (step S209), and it will progress to step S210.
[0028] At step S210, it distinguishes whether the facsimile number to be dialed of the static-image data transfer point is registered beforehand. In addition, the DTMF signal inputted from the push-button phone of the input from a control unit 4 or a going-out place etc. is analyzed by the sound signal analysis section 11, and the facsimile number to be dialed of this destination is registered. When the destination facsimile number to be dialed was registered at step S210 and it is distinguished, according to an ISDN user and a network interface, call origination is carried out to the facsimile apparatus of the destination facsimile number to be dialed concerning registration (step S211). And it transmits according to the G3 facsimile communications protocol according the extracted static-image data to advice T.30 (step S212), and according to an ISDN user and a network interface, a call is released (step S217) and it ends.
[0029] On the other hand, when the destination facsimile number to be dialed is not registered When there is arrival from waiting (step

S213) and facsimile apparatus, the arrival from facsimile apparatus Analyze the command in the initial discernment from the other party facsimile apparatus, and in the case of a digital instruction signal (DCS), noting that it is data transmission from the usual facsimile apparatus According to the G3 facsimile communications protocol by advice T.30, the usual data reception from facsimile apparatus is performed (step S215), and it progresses to step S217, and according to an ISDN user and a network interface, a call is released and it ends. On the other hand, the extracted static-image data are transmitted to the other party facsimile apparatus (step S216), and it progresses to the above-mentioned step S217 noting that it is the demand of polling, when the analyzed command is a digital SEND statement (DTC).
[0030] Thus, this TV phone machine extracts static-image data from the dynamic-image data by which timed recording was carried out, transmits the static-image data to the facsimile apparatus of the facsimile number to be dialed registered beforehand automatically, or transmits them according to the demand of the polling from facsimile apparatus.
[0031] If the facsimile number to be dialed of the facsimile apparatus which follows, for example, is always [of office] used is registered beforehand, the outline of the dynamic-image data by which timed recording was carried out can be easily checked with the above-mentioned facsimile apparatus, without performing a transfer request. Moreover, for example, the outline of the dynamic-image data by which timed recording was carried out can be checked by requiring polling also from facsimile apparatus which have not registered the facsimile number to be dialed beforehand, such as facsimile apparatus of a business trip place. In addition, even if it is the facsimile apparatus of a business trip place etc., when the facsimile number to be dialed is known, it can check easily with the facsimile apparatus concerned by registering the facsimile number to be dialed beforehand, without performing a transfer request. Moreover, since a facsimile number to be dialed can be registered also from a push-button phone, the registration of it from a remote place is also attained by using a public telephone etc., for example.
[0032] Next, in step S207,209 of drawing 2 , the static-image data extraction section 10 explains the processing at the time of extracting static-image data from dynamic-image data to a detail according to the flow chart of drawing 4 and drawing 5 .
[0033] The static-image data extraction section 10 performs read-out (step S300) and decryption processing from the data accumulation section 3 (step S301), and writes the dynamic-image data which followed first coding specified by advice H.261 in the frame memory in this static-image data extraction section 10 (step S302).
[0034] Next, it distinguishes whether the air time for carrying out facsimile transmission of the static-image data automatically is set as the time amount which the user set up beforehand (step S303). Consequently, when air time is not set up, it progresses to step S305. On the other hand, when air time is set up, and waiting (step S304) and air time come that air time comes, it progresses to step S305.
[0035] At step S305, the image data currently written in on the current frame memory is read. And binary-ized processing is performed for the brightness component of the read image data by drawing and the general binary-ized technique (systematic dither method and error diffusion method etc.) (step S306). next, as a coding method specified by the advice T.4 for changing into facsimile data the image data made binary It distinguishes whether which method of MH coding, MR coding, and a MMR coding method is beforehand set up by the user (step S307). Coding processing by the set-up method is performed (steps S308, S309, and S310), the encoded facsimile data are stored in the data accumulation section 3 (step S311), and it ends.
[0036] The static-image data according to coding specified by advice T.4 will be extracted from the dynamic-image data which followed coding specified by advice H.261 by the above processing. In addition, it is good to set up the time amount to which transceiver actuation by the facsimile apparatus of an automatic-transmission place is not carried out frequently as time amount for making it transmit automatically, for example.
[0037] In addition, in the gestalt of this operation, as facsimile apparatus of the other party, although G3 facsimile equipment is assumed, it can respond with the same functional configuration also to G4 facsimile equipment.
[0038]
[Effect of the Invention] If dynamic-image data are received through said communications control means according to this invention as explained above, the dynamic-image data will be stored in said are recording means. With said extract means Static-image data are extracted from the stored dynamic-image data. The static-image data Since it changes into the data for facsimile with said conversion means, said communications control means is supplied by said transfer control means and it was made to make it transmit to predetermined facsimile apparatus, the outline of the automatic answering data accumulated in the TV phone machine can be easily checked from a remote place.

[Translation done.]

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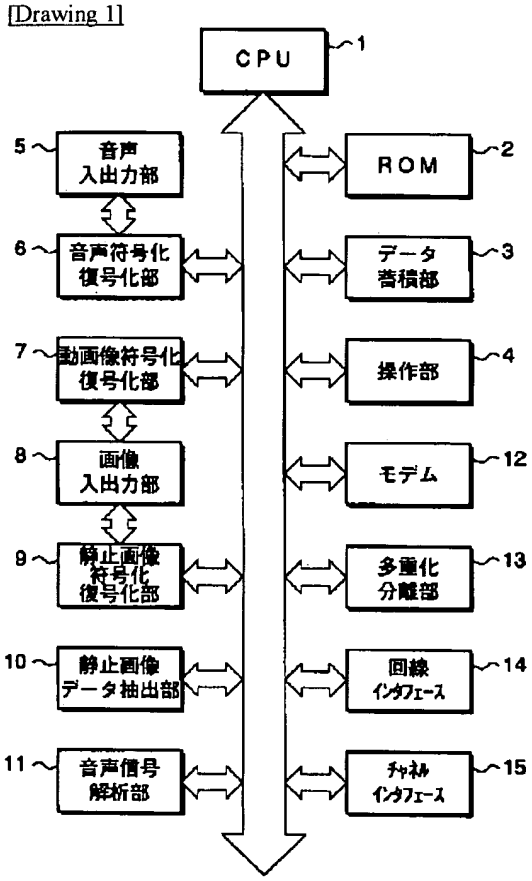
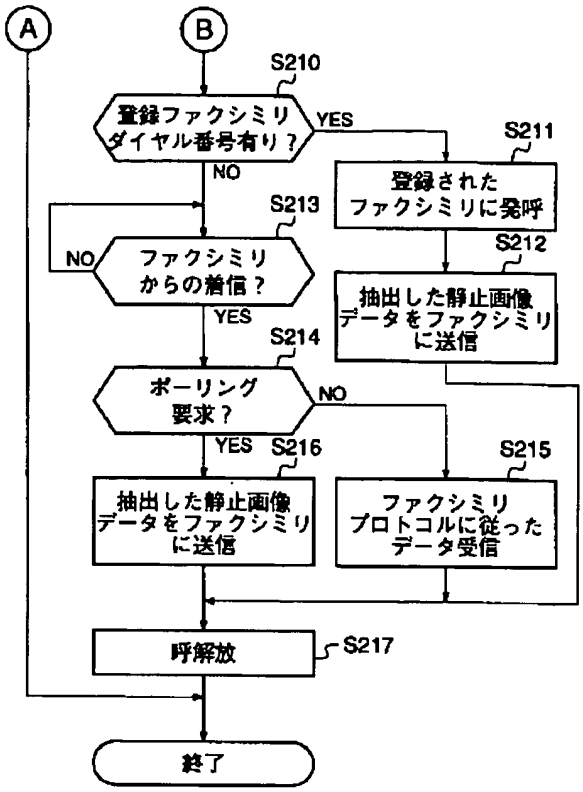
DRAWINGS

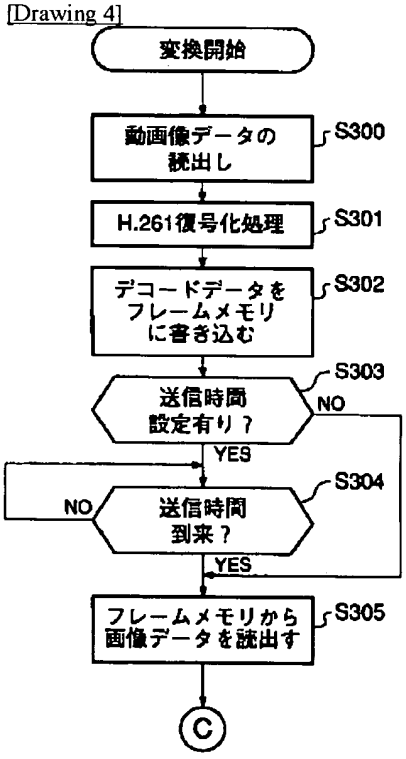
[Drawing 1]



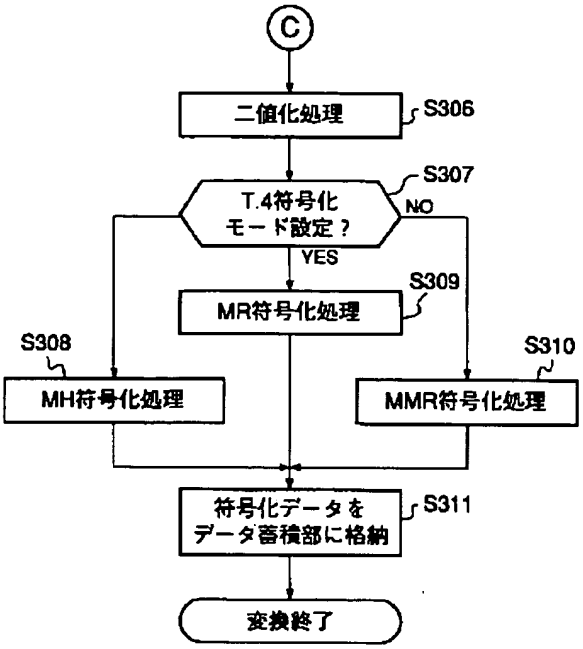
[Drawing 3]



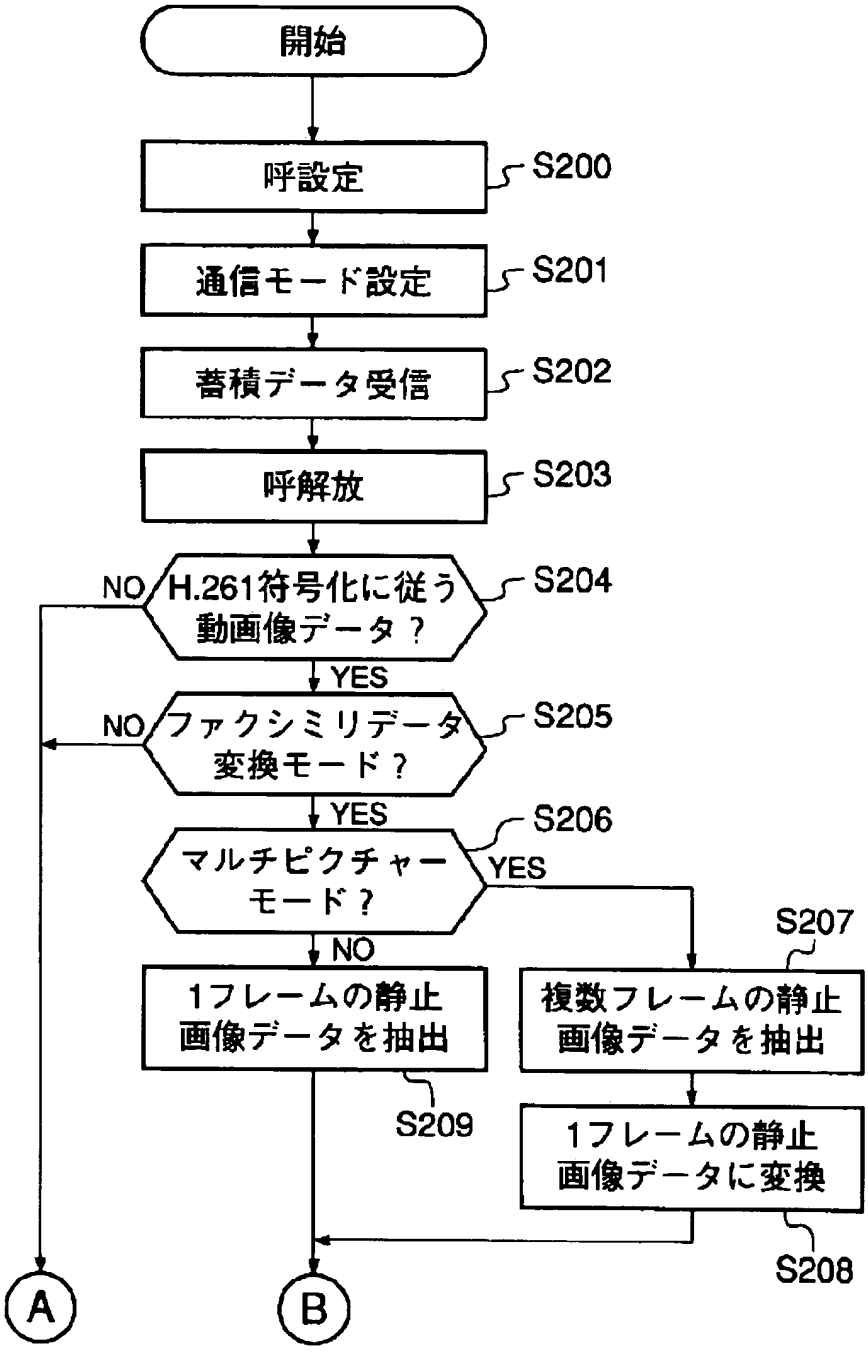
[Drawing 4]



[Drawing 5]


C
二値化処理
S306
T.4符号化
モード設定？
S307
NO
YES
MR符号化処理
S309
S308
MH符号化処理
S310
MMR符号化処理
符号化データを
データ蓄積部に格納
S311
変換終了

[Drawing 2]



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